

Description of a new species of *Chicoreus* (*Triplex*) Perry, 1811 (Gastropoda: Muricidae) from Palawan, Philippine Islands

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ABSTRACT. *Chicoreus* (*Triplex*) *jessicae* n. sp. is described from Balabac Island, South Palawan in the Philippine Islands. *Chicoreus torrefactus* (Sowerby, 1841), a remarkable sibling species, has a different larval development. *C. jessicae* differs also from *C. torrefactus* in other characteristic which confirms their separation.

The new species is also compared with *C. (T.) microphyllus* (Lamarck, 1822), *C. (T.) akritos* Radwin & D'Attilio, 1976 and *C. (T.) banksii* (Sowerby, 1841).

INTRODUCTION.

Five new Recent species of *Chicoreus* (*Triplex*) from the Indo-West Pacific were described since the revision of the genus (Houart, 1992): *C. (T.) dodongi* Houart, 1995, from the Philippines, *C. (T.) monicae* Bozzetti, 2001, from Madagascar, *C. (T.) setionoi* Houart, 2001, from the Arafura Sea, *C. (T.) allaryi* Houart, Quiquandon & Briano, 2004, from Madagascar, and *C. (T.) pisori* Houart, 2007, from Christmas Is., Line Islands, (Pacific). None of them are related to the new species here described.

Fourteen species of *Triplex* are currently known from the Philippines: *C. (T.) aculeatus* (Lamarck, 1822), *C. (T.) akritos* (Radwin & D'Attilio, 1976), *C. (T.) axicornis* (Lamarck, 1822), *C. (T.) banksii* (Sowerby, 1841), *C. (T.) brunneus* (Link, 1807), *C. (T.) enissodus* (Euthyme, 1889), *C. (T.) dodongi* Houart, 1995, *C. (T.) microphyllus* (Lamarck, 1816), *C. (T.) nobilis* Shikama, 1977, *C. (T.) palmarosae* (Lamarck, 1822), *C. (T.) saulii* (Sowerby, 1841), *C. (T.) strigatus* (Crosse, 1861), *C. (T.) torrefactus* (Sowerby, 1841) and *C. (T.) jessicae* n. sp., described here.

Chicoreus akritos was considered a synonym of *C. microphyllus* in my revision (Houart, 1992: 59). However, new elements and the discovery of that species in the Philippine Islands where it apparently does not intergrade with *C. microphyllus* have changed my opinion about that form, which I now consider as a valid species. On the other hand, I still consider *C. crocatus* (Reeve, 1845) a synonym of *C. banksii*. The shell illustrated in Houart (1992: fig. 318) from the Philippines as *C. microphyllus*, without any other locality data, is a specimen of *C. jessicae* n. sp.

Abbreviations

MNHN: Muséum national d'Histoire naturelle, Paris, France.
IRSNB: Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium.
JPB: collection of Jean-Pierre Barbier.
RH: collection of the author.
dd: empty shell.
lv.: collected alive.

P :	Primary cord
s :	secondary cord
t :	tertiary cord
ad :	adapical
ab :	abapical
P1 :	Shoulder cord
P2-P6 :	Primary cords of the convex part of the teleoconch whorl
s1-s6 :	secondary cords of the convex part of the teleoconch whorl
example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.	
ADP :	adapical primary cord on the siphonal canal
ads :	adapical secondary cord on the siphonal canal
MP :	median primary cord on the siphonal canal

ms :	median secondary cord on the siphonal canal
ABP :	abapical primary cord on the siphonal canal
abs :	abapical secondary cord on the siphonal canal
APERTURE	
ID:	Infrasutural denticle
D1 to D5:	Abapical denticles

Table 1. Terminology used to describe the spiral cords and the internal denticles of the outer lip (based on Merle 1999 and 2001).

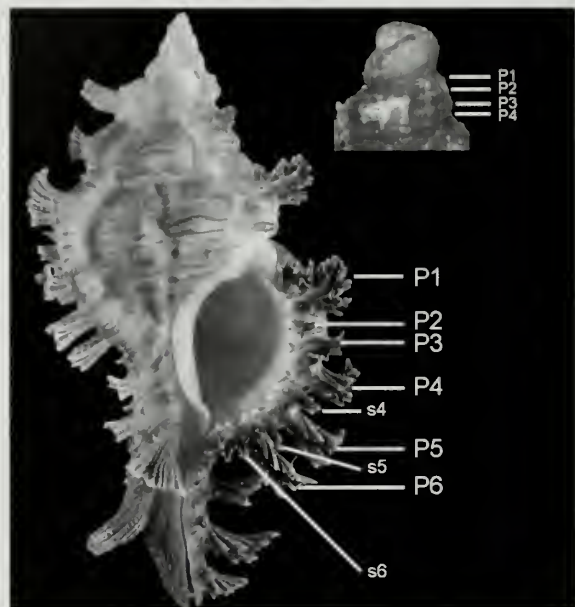


Fig. 1. Spiral cords morphology of *C. (T.) jessicae* n. sp.

SYSTEMATICS

Family **MURICIDAE** Rafinesque, 1815

Genus **Chicoreus** Montfort, 1810

Subgenus **Triplex** Montfort, 1810

Type species by monotypy: *Triplex foliatus* Perry, 1810 (= *Murex palmarosae* Lamarck, 1822)

Chicoreus (Triplex) jessicae n. sp.

Figs 1, 6-12

Type material. Holotype MNHN 21054, 1 paratype IRSNB IG 31128, 2 paratypes JPB, 2 paratypes RH (all from the type locality).

Type locality. Philippine Islands, South of Palawan, Balabac Island.

Description. Shell large, up to 76.5 mm in length at maturity (paratype JPB). Length/width ratio 1.8-1.9. Biconical, narrowly ovate, heavy, spinose. Shoulder strongly sloping, weakly convex.

Tan, light tan, or dark brown, occasionally with darker or lighter coloured spire whorls. Primary, secondary and tertiary cords topped with brown. One specimen (paratype JPB) and one specimen (RH) entirely dark

orange. Aperture yellowish, columellar lip pale yellow or light orange.

Spire high with 1.5 protoconch whorls and up to 7 or 8 weakly shouldered, spinose and nodose whorls. Suture adpressed.

Protoconch large, broad, bulbous, with broad first whorl (Figs 2, 12); terminal lip unknown (eroded).

Axial sculpture of last teleoconch whorls consisting of high, broad, rounded varices, each with 6 frondose, open, primary spines, and some secondary spinelets. Other axial sculpture of 2 low, rounded, intervarical ribs with strong node on adapertural rib. Shoulder spine broadest, usually longest. First teleoconch whorl with 10 or 11 ribs, second whorl starting varices with 3 intervarical ribs, third whorl with 3 varices and 3 intervarical ribs, fourth to last whorl with 3 varices and 2 intervarical ribs.

Visible part of first to penultimate whorls with 4 primary cords (P1-P4). P4 occasionally partially covered with next whorl. Last teleoconch whorl of 4 strong and 2 weak primary cords, topped with numerous, squamous threads. P1 spine broad, squamous, occasionally longest, P2 and P3 spines small, narrow, P4-P6 spines long with s4, s5 and s6. Presence of tertiary cords between s6 and ADP, and of numerous spiral threads over whole shell. Siphonal canal with ADP, t, ads, t, MP, t, ms (t), ABP, (t), abs and few threads. MP longest, ABP occasionally reduced (obsolete in holotype and in one paratype RH).

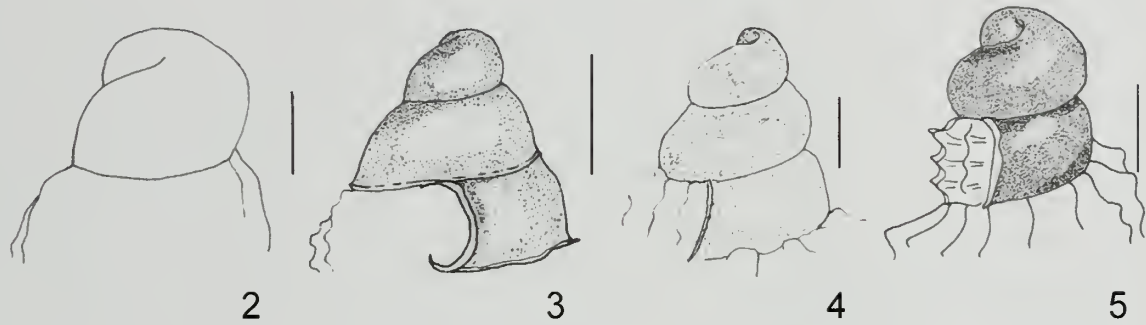
Aperture moderately large, ovate. Columellar lip narrow with small elongate folds, mostly all adapically, and strong parietal tooth at adapical extremity. Rim adherent. Anal notch deep, broad. Outer lip weakly erect, crenulated, with strong lirae within (ID split, D1-D4 split, D5). Siphonal canal moderately long, 32-37% of total shell length, narrow, strongly dorsally recurved at tip, narrowly open. Operculum dark brown, ovate with apical nucleus.

Remarks. *Chicoreus jessicae* n. sp. resembles strongly *C. torrefactus* (Figs 13-17), however, it differs primarily in having a different larval development. *C. jessicae* has a broad, globular protoconch consisting of 1.5 whorl, with large first whorl (Figs 2, 12) denoting non-planktotrophic, or even intracapsular development, while *C. torrefactus* has a conical protoconch consisting of 3 glossy whorls, denoting planktotrophic larval development (Figs 3, 15-16). Other differences are minor but

constant, *C. jessicae* is comparatively narrower (length/width ratio 1.8 or 1.9), compared to a length/width ratio of 1.7-1.9 in *C. torrefactus*. The spire is slightly lower, 37-43% of total shell length compared to 41-50% in *C. torrefactus*. The aperture is narrower vs. its height (height/width ratio 1.3 or 1.4 with a majority of 1.4) compared to *C. torrefactus* (height/width ratio 1.2 - 1.4 with a majority of 1.2 and 1.3). Finally, the aperture in *C. jessicae* is smaller and narrower with a height of 24-27% of the shell length, compared to 26-30% in *C. torrefactus* (Tables 2 and 3). Other differences in the spiral cords and other shell morphology were not detected.

Chicoreus jessicae differs from *C. microphyllus* (Fig. 18) in having a different protoconch (Fig. 4), fewer intervarical ribs, a narrower shell and aperture, and a comparatively longer siphonal canal. It also differs from *C. akritos* (Fig. 19) in having a different protoconch and a comparatively longer siphonal canal. The protoconch of *C. akritos* is almost identical to that of *C. microphyllus*. It differs from the typical form of *C. banksii* (Fig. 20) in having a different protoconch (Fig. 5), a comparatively narrower and more biconical shell, and a lower spire.

Etymology. At the request of Jean-Pierre Barbier, this new species is named after his daughter, Jessica.



Figures 2-5. Protoconchs (scale bars: 0.5 cm)

2. *Chicoreus jessicae* n. sp.; 3. *C. torrefactus*; 4. *C. microphyllus*; 5. *C. banksii*.

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Figures 6-17

6-12. *Chicoreus jessicae* n. sp.

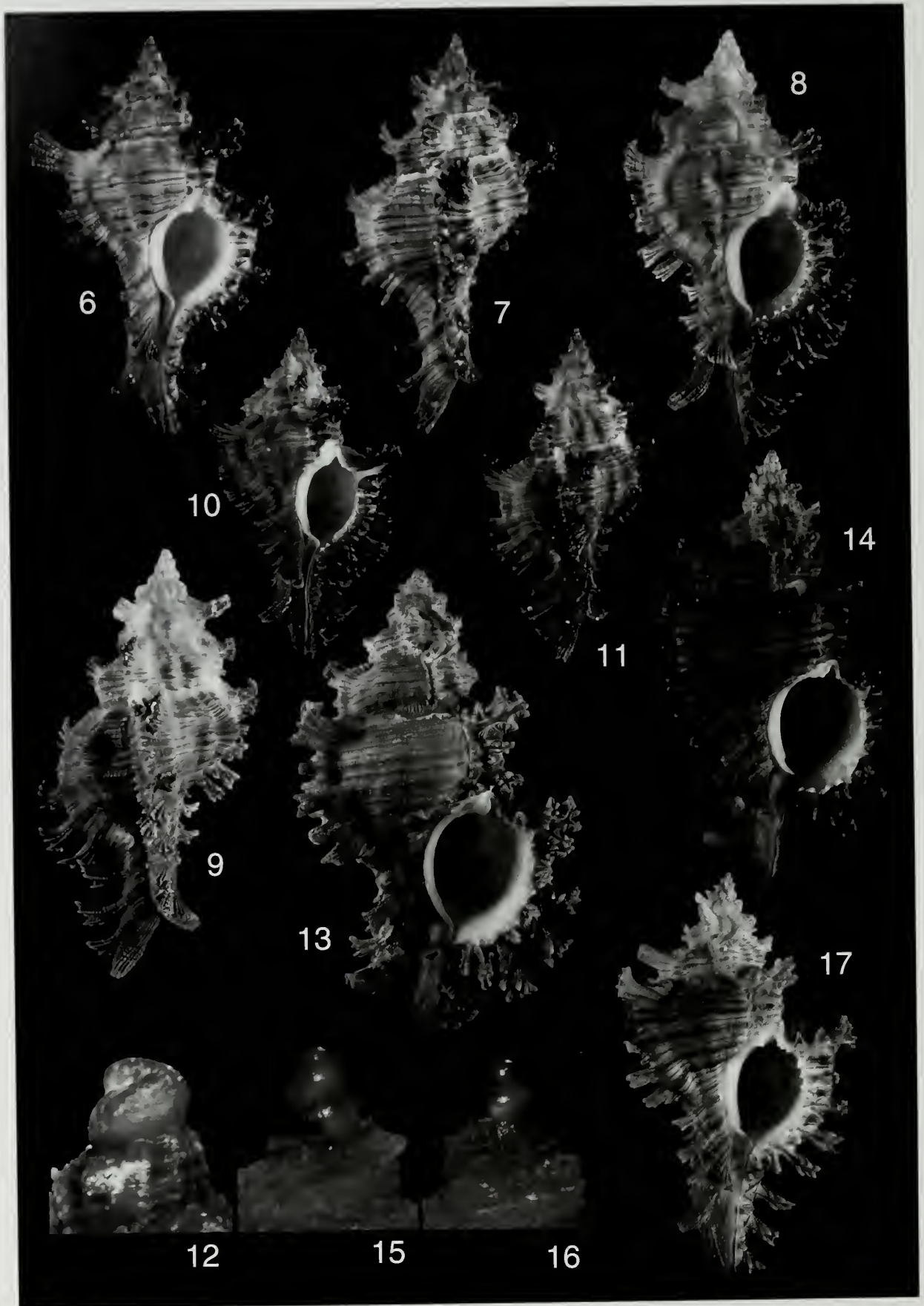
6-9. Philippine Islands, Palawan.

6-7. Holotype MNHN 21054, 69.6 mm; 8-9. Paratype RH, 71.1; 10-11. Paratype RH, 61.6 mm; 12. Protoconch paratype RH 61.6 mm, scale bar 0.5 mm.);

13-17. *Chicoreus torrefactus* (Sowerby, 1841), Philippines, small islands between Cebu and Bohol.

13. 110 mm; 14. 77.4 mm; 17. 55.3 mm.

15-16. Protoconch (scale bars: 0.5 mm.).

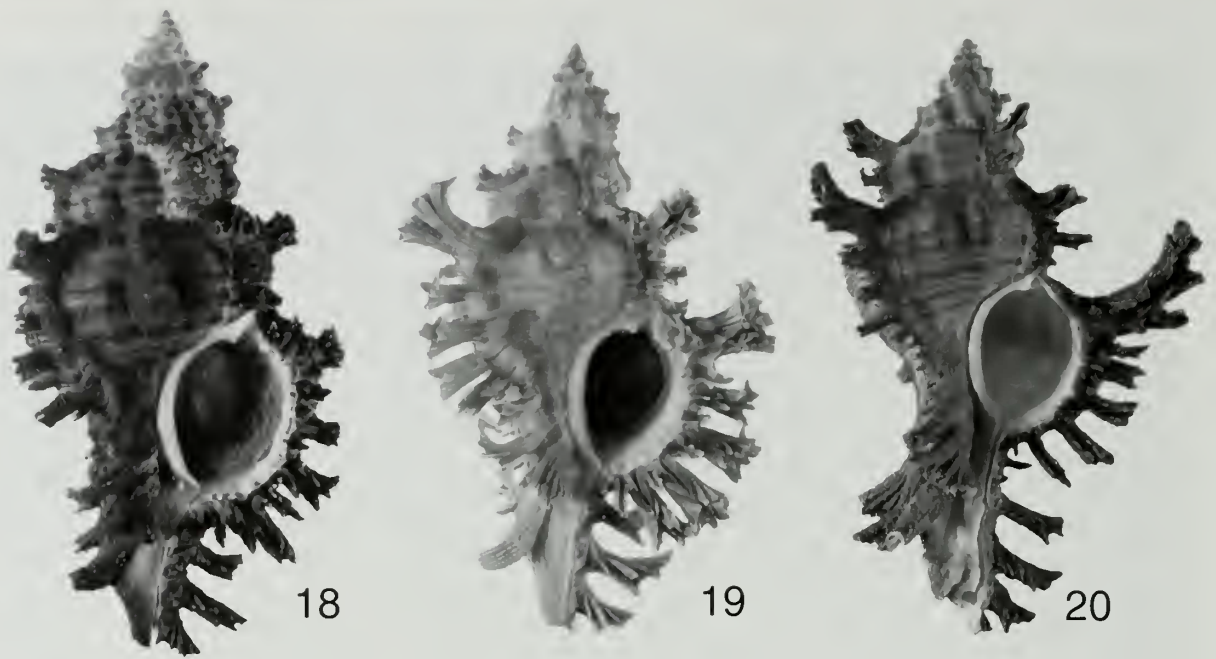


Locality	Height of the shell	Width of the shell	Length of the siphonal canal	Height of the spire	Height of the aperture	Width of the aperture
Philippines, South of Palawan, Balabac Island, holotype MNHN	69.6	38.3	26.0	29.0	17.8	12.9
South of Palawan, Balabac Island, paratype IRSNB	75.5	41.6	27.2	32.4	17.9	13.6
South of Palawan, Balabac Island, paratype RH	71.1	38.2	26.4	26.6	19.1	13.5
Palawan, paratype RH	61.6	33.9	22.1	25.1	14.9	10.9
South of Palawan, Balabac Island, paratype JPB	76.4	41.1	25.1	32.4	19.0	14.2
South of Palawan, Balabac Island, paratype JPB	71.8	37.1	26.6	29.4	17.6	13.8

Table 2. Shell measurement and locality data for *Chicoreus (Triplex) jessicae* n. sp. (in mm)

Locality	Height of the shell	Width of the shell	Length of the siphonal canal	Height of the spire	Height of the aperture	Width of the aperture
Philippines, islands between Cebu and Bohol	111	59.9	31.9	51.1	32.4	25.0
	82.2	42.1	25.8	35.4	24.6	18.1
	77.3	40.3	23.0	35.3	22.2	17.2
	72.1	40.0	23.7	32.1	19.7	14.7
	52.3	30.4	18.0	20.4	14.1	10.6
Philippines, Mactan	56.8	32.3	17.2	23.7	15.8	11.4
Papua New Guinea, Laing Island	85.1	49.1	25.3	38.5	22.4	18.7
	90.4	53.3	26.0	44.8	25.0	19.0
Japan., Wakayama Prefecture	109.3	64.8	34.6	45.0	32.2	26.4
Thailand	82.0	49.0	26.7	34.3	24.2	19.4
Malaysia	83.0	48.8	23.3	37.9	24.2	19.6
Japan, Tosa	97.7	50.3	30.2	40.0	25.1	20.7
Papua New Guinea	78.4	44.1	24.4	35.4	20.6	17.1
New Caledonia	101.3	62.8	27.5	48.6	29.1	23.0
East Java	99.1	55.9	27.6	46.9	30.1	24.3
	94.3	55.4	25.4	42.2	27.3	21.8
West Thailand	105.1	60.1	28.1	53.0	26.5	22.8
Phuket, Thailand	84.7	45.4	24.5	38.1	24.2	19.0
	87.2	48.6	26.1	39.0	25.5	20.4
Seychelles	100.6	54.6	27.8	47.5	26.4	21.0

Table 3. Shell measurement and locality data for *Chicoreus (Triplex) torrefactus* (Sowerby, 1841) (in mm) (all coll. R. Houart).



Figures 18-20

18. *Chicoreus microphyllus* (Lamarck, 1816), Sulawesi, Indonesia, 84.3 mm; 19. *C. akritos* Radwin & D'Attilio, 1976, Sulu, Philippines, 64.3 mm; 20. *C. banksii* (Sowerby, 1841), Sabah Indonesia, 62.5 mm (all coll. RH).